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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---------------------------------------|-------------|----------------------------|---------------------|------------------|
| 10/566,763 | 01/31/2006 | Godefridus Johannes Geelen | NL03 0935 US1 | 6167 |
| 65913 | 7590 | 08/20/2009 | EXAMINER | |
| NXP, B.V. | | | CHENG, DIANA | |
| NXP INTELLECTUAL PROPERTY & LICENSING | | | | |
| M/S41-SJ | | | ART UNIT | PAPER NUMBER |
| 1109 MCKAY DRIVE | | | | 2816 |
| SAN JOSE, CA 95131 | | | | |
| | | | NOTIFICATION DATE | DELIVERY MODE |
| | | | 08/20/2009 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

| | | | |
|------------------------------|------------------------|-----------------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/566,763 | GEELEN, GODEFRIDUS JOHANNES | |
| | Examiner | Art Unit | |
| | Diana J. Cheng | 2816 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 04 August 2009.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,3,4 and 8-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,3,4 and 8-11 is/are rejected.
- 7) Claim(s) 12 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Response to Amendment

1. Applicant's arguments with respect to claims 1, 3, 4, and 8-12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 4, and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dedic (5,384,570), and in view of Applicant's Admitted Prior Art (AAPA).

Re claim 1, Dedic discloses in Fig. 1 a single track-and-hold circuit comprising: an input signal V_i , an output signal V_o , a switch 1, capacitor 2, and high-impedance unity-gain amplifier 3, where in Fig. 2, the amplifier contains a current source 32, and a buffering transistor 33, but does not teach the circuitry details of the first and second bootstrap switches.

AAPA in Fig. 3 teaches a single track-and-hold circuit having an input signal (V_{in}) and an output signal (V), a bootstrap switch (14a) having as its inputs a clock signal and an input signal (vin); said single track-and-hold circuit further comprising a capacitor ($Chold$), said input signal (V_{in}) being connected to said capacitor ($Chold$) via a switch

(10), said switch (10) being closed during a track mode of said circuit and open during a hold mode of said circuit, said bootstrap switch (14a) having as an output to said switch (10), a clock signal (clkboot) equal to said input signal (Vin) added to a supply voltage (Vdd);

including a second bootstrap switch (14b); and
two dummy switches (16) connected on either side of said switch (10) and
clocked in anti-phase (Specification, lines 22-23) to said switch (10) by anti-phase boot
clock signal (clkboot).

AAPA teaches that Fig. 3 is an improvement upon Fig. 1, which includes a switch and capacitor, and acts as a simple track-and-hold circuit. Fig. 1 of AAPA is equivalent to the switch 1 and capacitor 2 of Dedic.

Therefore, it would have been obvious to one of ordinary skill in the art to use the teachings of AAPA of a track and hold circuit, to be used in place of switch 1 and capacitor 2 of Dedic (as also described by the AAPA Fig. 1 as a simple track-and-hold circuit) for the purpose of suppressing the offset and distortion of AAPA Fig. 1.

The combined teachings of Dedic and AAPA further teach said input signal (AAPA, Fig. 3, vin) of said bootstrap switch (AAPA, Fig. 3, 14a) being connected to said output signal (Dedic, Vo) of said circuit via a current source (Dedic, 32) and a buffering transistor (Dedic, 33), characterized in that said input signal (AAPA, Fig. 3, vin) of said bootstrap switch (AAPA, Fig. 3, 14a) comprises said output signal (Dedic, Vo) of said circuit; and

the input signal (AAPA, Fig. 3, vin) of which is connected to said output signal (Dedic, Vo) of said single track-and-hold circuit via said current source (Dedic, 32) and said buffering transistor (Dedic, 33) of said single track-and-hold circuit
wherein both said bootstrap switch (AAPA, Fig. 3, 14a) and said bootstrap switch (AAPA, Fig. 3, 14b) are connected to the same level shifted output signal (Dedic, Vo).

Re claim 3, Dedic and AAPA, as a whole, teach single a track-and-hold circuit according to the present invention, wherein said buffering transistor (Dedic, 33) comprises a MOS transistor [Fig. 2, 33; Fig. 4, 31].

Re claim 4, Dedic and AAPA, as a whole, teach a single track-and-hold circuit according to the present invention, wherein Dedic further teaches said MOS transistor (33) is a PMOS transistor [Fig. 4, 33, 34].

Re claim 8, Dedic and AAPA, as a whole, teach an analog-to-digital converter including a single track-and-hold circuit according to the present invention [Dedic, Col. 1, lines 6-9].

Re claim 9, Dedic and AAPA, as a whole, teach an integrated circuit including an analog-to-digital converter according to the present invention [where it would be inherent for an analog-to-digital converter to be used in an integrated circuit].

Re claim 10, Dedic and AAPA, as a whole, teach all the limitations of the present invention, wherein Dedic further teaches V_{gs} of switch (10) is equal to $V_{dd} + V_{levelshift}$ (Col.1, line 46- Col. 2, line 28, where both current source and parasitic capacitances influence the gate to source voltage).

Re claim 11, Dedic and AAPA, as a whole, teach all the limitations of the present invention, wherein Dedic further teaches V_{gs} of switch (10) is equal to $V_{dd} + V_{levelshift}$ (Col.1, line 46- Col. 2, line 28, where both current source and parasitic capacitances influence the gate to source voltage). However, Dedic and AAPA, as a whole, does not explicitly teach $V_{levelshift} = 0.5V$. However, Dedic teaches both the current source and the parasitic capacitances to be of very small values, it would have been well known in the art to have used routine experimentation to have $V_{levelshift} = 0.5V$. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

Allowable Subject Matter

4. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 12, the prior art does not disclose or teach a single track-and-hold circuit, wherein said output signal is constant in hold mode so there is no crosstalk to said capacitor.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diana J. Cheng whose telephone number is (571)270-1197. The examiner can normally be reached on Monday-Friday, 9 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln D. Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. J. C./
Examiner, Art Unit 2816
08/14/2009
/Lincoln Donovan/
Supervisory Patent Examiner, Art Unit 2816